

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions of claims in the application.

1. (Currently Amended) A DC-DC converter comprising:
 - a transformer having primary side terminals, secondary side terminals, a primary side winding, and a secondary side winding ~~and determining a voltage converting ratio;~~
 - a pair of switching means ~~which is~~ interposed between said primary side terminals and said primary side winding[[],];
 - a LC resonant circuit comprised of a resonating reactor connected in series with said secondary side winding of said transformer, and a resonating capacitor that resonates with said resonating reactor; [[and]]
 - a driving means for alternately turning said pair of switching means ON/OFF[[],];

wherein:

a resonant current detecting means for detecting a value per half cycle of a resonant current caused by an operation of said LC resonant circuit; and

[[means]] a current value comparing unit comparing the detected per-half cycle resonant current value to a threshold value and for feeding a detected output of said resonant current detecting means back feeding the comparison result to said driving means are provided;,

wherein [[and]]

 said driving means drives said pair of switching means by correcting their on-state lapses of time so that their on-state resonant currents may be nearly equal to each other based on the

~~detected output comparison result of said current value comparing unit of said resonant current detecting means.~~

2. (Original) The DC-DC converter according to claim 1, wherein said resonant current detecting means is provided on the primary side of said transformer.

3. (Currently Amended) A bi-directional DC-DC converter comprising:
a transformer having low-voltage side terminals, high-voltage side terminals, a low-voltage side winding, and a high-voltage side winding ~~and determining a voltage converting ratio;~~

a low-voltage side pair of switching means interposed between said low-voltage side terminals and said low-voltage side winding;

a high-voltage side pair of switching means interposed between said high-voltage side terminals and said high-voltage side winding;

a low-voltage side rectifying element connected in parallel with each of switching elements in said low-voltage side pair of switching means;

a high-voltage side rectifying element connected in parallel with each of switching elements in said high-voltage side pair of switching means; [[and]]

a driving means for turning ON/OFF the switching elements in said low-voltage side pair of switching means and the switching elements in said high-voltage side pair of switching means; ~~wherein:~~

a LC resonant circuit [[is]] interposed between said high-voltage side winding and said high-voltage side pair of switching means;

a resonant current detecting means [[for]] detecting a value per half cycle of a resonant current caused by an operation of said LC resonant circuit; and

[[means]] a current value comparing unit comparing the detected per half cycle of a threshold value and for feeding a detected output of said resonant current detecting means back feeding the comparison result to said driving means, wherein are provided; and

 said driving means drives said low-voltage side pair of switching means or said high-voltage side pair of switching means by correcting their on-state lapses of time so that their on-state resonant currents may be nearly equal to each other based on the detected output comparison result of said current value comparing unit of said resonant current detecting means.

4. (Canceled)

5. (Original) The DC-DC converter according to claim 3, wherein said low-voltage side pair of switching means and said high-voltage pair of switching means are each configured by interconnecting four switching elements in a bridge.